

REMARKS

This responds to the Final Office Action mailed on April 28, 2005.

Claims 1, 3-6, 8-11, and 13-16 are amended, no claims are canceled, and no claims are added; as a result, claims 1-16 are now pending in this application. The claims have been amended to correct typographical errors.

§103 Rejection of the Claims

Claims 1-11 and 13-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Maillard (EP 0912052 A1) in view of Morrison (U.S. 5,815,671) and in view of Wendorf (U.S. 5,469,431).

Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Maillard (EP 0912052 A1) in view of Morrison (U.S. 5,815,671) and in view of Wendorf (U.S. 5,469,431) and in view of Takahisa (U.S. 5,577,266).

Claim 1

Amendments

Claim 1 has been amended firstly by replacing the phrase "wherein the control words are delivered by the decryptor" by the phrase "wherein the decryptor processes the ECMs to deliver the control words". A second amendment consists of the insertion of the phrase "wherein the decryptor processes the ECMs in accordance with the control information by ensuring that the delay between the ECMs is such that a specified duration of the time slot is maintained". The former amendment adds no subject-matter because it is merely a re-wording of part of the original claim. The latter amendment is based on claim 2 as filed and on page 6, lines 31-35 of the application as filed. From the passages on page 7, lines 1-2, lines 19-20, lines 28-29 and page 8, lines 2-3, it is clear that the concept of enforcing a delay between the delivery of control words is a general concept underlying each of the embodiments described in the application as filed.

Thus, the amendments to claim 1 do not extend the subject-matter of the claim unduly.

Obviousness

The subject-matter of claim 1 is not obvious having regard to EP-A1-0 912 052 (D1), US 5,815,671 (D2) and US 5,469,431 (D3), because they do not teach all the limitations of the claim and because they do not contain a motivation, suggestion or incentive that would lead the skilled person to combine their teachings. Moreover, an effect is obtained that goes beyond the effects provided by the method and control devices disclosed in the above-mentioned prior art.

D1 relates to a method for transmission and recording of scrambled digital data alleged to overcome the problem that a recording can only be viewed in conjunction with a particular receiver/decoder (column 2, lines 9-12), whilst keeping enabling secure recording of digital data that cannot be easily used to generate pirate copies of the transmitted data (column 2, lines 22-24). Scrambled data is transmitted together with a control word for descrambling of the digital data (column 2, lines 27-28). Access criteria, indicating how the programme is commercialised, are also added to the stream. The programme may be commercialised in either one of a number of subscription modes and/or one of a number of Pay Per View (PPV) modes or events (column 7, lines 1-6). Both the control word and the access criteria are used to build an Entitlement Control Message (ECM) (column 7, lines 17-19). An ECM is generated, encrypted with a first key and transmitted in an encrypting unit (column 7, lines 23-25). An ECM transmitted with a programme and decrypted by a smart card may also contain credit units, subsequently stored in the card, and which control the number of times a recorded film may be viewed (column 10, lines 55-58). Once the number of credits has been decremented to zero, indicating the recording has been viewed a predetermined number of times, a message is sent to the decoder to prevent further viewings of the film (column 11, lines 3-7).

D2 describes an entertainment system consisting of program and auxiliary message materials to be transmitted over an assigned frequency band and stored for later retrieval and use (column 2, lines 17-20). The system presents the message materials at specific time segments within the day,

with or without regard to the program material selected at that time by the user (column 2, lines 61-64). A data source/encoding means includes apparatus for encoding respective program flags and message code flags into the program and message materials (column 4, lines 43-46). A receiver constantly monitors the program break flags in auxiliary data accompanying a program during the reproduction of that program (column 9, lines 21-24). User service code data stored in the memory of receiver describes the user service. If the service is not commercial-free, the categories of commercials and messages to be presented are defined (column 9, lines 39-42). If the user service code does not dictate that a message should be inserted in a break, the program continues uninterrupted (column 9, lines 61-63).

D3 relates to a method of identifying the availability and the location of information streams, representing services, transmitted over one of a multiplicity of channels (column 1, lines 13-16), with the object of maximising the utilisation of spectrum capacity (column 2, lines 8-10).

The invention differs from D2 in that D2 does not disclose broadcasting entitlement control messages (ECMs) containing control words in an encrypted manner using a second key. D2 does not disclose that a decryptor is provided at each receiver for retrieving the control words for descrambling a program signal, either. Consequently, D2 does not disclose a decryptor processing the ECMs to deliver the control words for descrambling the program signal. Also, D2 doesn't disclose that a plurality of ECMs comprises control information to control the decryptor in such a manner that at least the time slots for second type of content signals are maintained in the first type of content signals, wherein the decryptor processes the ECMs in accordance with the control information by ensuring that the delay between ECMs is such that a specified duration of the time slot is maintained. Instead, D2 discloses that program and message materials are decoded and provided for storage in a receiver memory (column 5, lines 19-20). Program break flags are monitored during reproduction of a program (column 9, lines 21-24). A user service code stored in a memory of the receiver dictates whether a message should be inserted in a break in the program material (column 9, lines 60-65).

The effect of this difference is that the known method offers a relatively insecure protection against the "skipping" of message material to be inserted in the program material. It is, for example, possible to retrieve only the (unscrambled) program material from the receiver memory 28, or to alter the user service code data.

The invention provides a relatively secure method to control the use of a program signal, that prevents even an authorised receiver from "skipping" content signals of a second type that are to be inserted in content signals of a first type.

Because the control information controls the decryptor that delivers the control words for descrambling the content signal of the first type, and the decryptor processes ECMs in accordance with the control information by ensuring that the delay between ECMs is such that the time slot's duration is maintained, it is not possible to descramble the content signal of the first type at a rate sufficient to skip the time slots for inserting the content signal of the second type. This is true even for a receiver having the second key.

D2 teaches away from this solution. According to D2, received signals are first descrambled and stored (in the clear).

The skilled person seeking to provide the same effect as that provided by the invention would not turn to either of D1 and D3. D1 does not contain any teachings with regard to the insertion of content signals of one type in those of another type. Moreover, D1 fails to teach control information controlling the decryptor, let alone that a decryptor processes ECMs to deliver control words in accordance with the control information by ensuring that the delay between ECMs is such that a specified duration of the time slot is maintained. Instead, D1 teaches access information that properly defines only how content is to be paid for (column 7, lines 1-17). In the only specifically disclosed embodiment, viewing is prevented by sending a message to the decoder from the smart card (decryptor, see column 11, lines 5-7). There is no disclosure of controlling access by conditionally delivering (decrypted) control words.

D3 discloses only that ECMs may be carried in a channel of a certain type (see column 6, lines 36-46). It has no bearing on inserting content signals of a second type in a time slot in a first type of content signals. It certainly contains no disclosure of an ECM comprising control information to control a decryptor of ECMs.

Thus, the skilled person has no incentive to combine the teachings of any of D1-D3.

Furthermore, none of D1-D3 discloses that a plurality of ECMs comprises control information to control a decryptor in such a manner that at least the time slots for second type of content signals are maintained in the first type of content signals, wherein the decryptor processes the ECMs in accordance with the control information by ensuring that the delay between ECMs is such that a specified duration of the time slot is maintained.

The invention provides a new effect, namely that even authorised receivers of program signals cannot prevent the presence of time slots in content signals of a first type for insertion of content signals of a second type. Thus, the invention provides a mechanism allowing the broadcaster to ensure that it is impossible to reproduce the first type of content signals without also reproducing the second type of content signals at intervals.

Claim 14

Amendments

Claim 14 has been amended in a corresponding manner to claim 1. Basis for the amendment is provided by the passages mentioned above with regard to claim 1.

Obviousness

Claim 14 relates to a control device for a receiver for carrying out the method of claim 1, and recites features that enable the method to be carried out. For this reason, the arguments in support of finding the subject-matter of claim 1 not to be obvious apply equally to the invention defined in claim 14.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney 408-846-8871 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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